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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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02/23/2004

Vishal Sinha

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10/13/2006

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EXAMINER

KIM, WESLEY LEO

ART UNIT

PAPER NUMBER

2617

DATE MAILED: 10/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/785,596

Applicant(s)

SINHA, VISHAL

Examiner

Wesley L. Kim

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 August 2006.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-40 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-40 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 8/4/06 has been entered.

Response to Amendment

This Office Action is in response to Amendment filed 8/4/06.

- Claims 9, 20, 31, and 39 are currently amended.
- Claims 1-8, 10-19, 21-30, 32-38, and 40 are in their original form.
- Claims 1-40 are pending in the current Office Action.

Response to Arguments

Applicant's arguments filed 8/4/06 have been fully considered but they are not persuasive.

- Applicant argues that Lee does not teach removing the stored information regarding the client from the first switch if the first switch is not a home agent for the client and the applicant further discusses that Lee doesn't send a roaming request to a non-home agent, ever.

The examiner respectfully disagrees. The way in which the claim is written does not say that "removing the stored information regarding the client from the first

switch if the first switch is not a home agent for the client” has to follow the order in which the claim is written. To the examiner, “removing the stored information regarding the client from the first switch if the first switch is not a home agent for the client” can be performed at any point in time before, after, or during the whole roam requesting process.

Lee teaches that if the mobile station times out, then the reference to the home agent (which is no longer the home agent) is removed from the home agent table (Col.3;17-23). At some point in time when the mobile station times out from the home agent, then the stored information regarding the client from the first switch if the first switch is not a home agent for the client is removed.

- Applicant argues that Lee attributes two different, conflicting functions to the same passage in Lee, in order to meet two different elements of claim 12.

To the examiner, “receiving the roam reply” was interpreted such that the foreign agent received the roam reply. Now pertaining to the limitation, “sending a reply”, the examiner interpreted this to mean that the home agent, sent a reply to the foreign agent indicating failure of the handling of the roam request.

With this interpretation of the claimed limitations, the examiner believes that the passages Col.9;57-61 and Col.8;13-15 are correctly applied and fully read on the claims which are broadly written.

- Applicant argues that in Claim 9, Rue does not teach certain limitations of the claim.

The examiner respectfully disagrees. These arguments are moot in view of a new grounds of rejection.

Specification

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1-2, 7-8, 16, 23-24, 29-30, and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al (U.S. Patent 6535493 B1).

Regarding Claims 1, 16, 23, and 38, Lee teaches handling a roam request at a first switch (Col.8;13-14, registration request is roam request and home agent is first switch), the roam request sent by a second switch and containing information about the client that is roaming to the second switch (Col.8;8-12, second switch is the foreign agent), the method comprising:

storing information regarding the client (Col.6;15-19, obvious the home agent, i.e. first switch, stores information regarding the client after completing association handshake);

receiving the roam request after said storing (Col.8;8-12, handshake is complete, i.e. information is stored, therefore roam request is after storing);

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determining if the first switch is a home agent for the client (Col.6:35-40, it is determined that the first switch is a home agent therefore data is tunneled to the mobile station from the home agent);

tunneling traffic for the client to the second switch if the first switch is a home agent for the client (Col.6:35-40, data is tunneled to the mobile station from the home agent); and

sending a roam reply to the second switch (Col.8:13-14 home agent, i.e. first switch, send reply to foreign agent, i.e. second switch), however Lee **is silent on** removing the stored information regarding the client from the first switch if the first switch is not a home agent for the client.

Lee teaches that if the mobile station times out, then the reference to the home agent (which is no longer the home agent) is removed from the home agent table (Col.3:17-23). At some point in time when the mobile station times out from the home agent, then the stored information regarding the client from the first switch if the first switch is not a home agent for the client is removed.

To the examiner, it would have been obvious to modify Lee at the time of the invention, such that the stored information regarding the client is removed from the first switch if the first switch is not a home agent for the client, to provide a method of freeing-up memory from the associated switch, which the client is no longer associated with, consistent with high level concepts for memory management.

Regarding Claims 2 and 24, Lee teaches all the limitations as recited in claim 1 and 23, respectively, and Lee further teaches roam reply contains network

configuration information regarding the client (Col.9:46-49, the reply contains information regarding whether or not the client registration request has been accepted or denied, which is network configuration information).

Regarding Claims 7 and 29, Lee teaches all the limitations as recited in claim 1 and 23, respectfully, and Lee further teaches that a roam reply indicates failure if something went wrong during the process, otherwise it indicates success (Col.8:13-15, roam request granted indicates success, roam request denial indicates failure).

Regarding Claims 8 and 30, Lee teaches all the limitations as recited in claim 1 and 23, respectfully, however Lee **is silent on** the roam request is an Inter Switch Roaming Protocol (ISRP) roam request.

Lee teaches a registration request (i.e. roaming request) is a UDP protocol registration request (Col.10:35-45). One of ordinary skill in the art would find it obvious to use an alternative protocol well known in the art, an inter-switch link protocol (i.e. ISRP), for routing data between VLAN switches.

2. Claims 9-11, 20, 31-33, 37, and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rue (U.S. Pub. 2003/0185172 A1) in view of Eglin (U.S. Pub 2003/0210671 A1).

Regarding Claims 9, 20, 31, and 39, Rue teaches receiving a move request (Par.44:9-12, handover request message) from an access point (Par.44, fourth access point) associated with the switch (Par.45: second mobile access server); and sending a roam request to all peer switches in the same mobility domain as the

switch (Par.46;1-6). To the examiner a home mobile access server find request message (MAS) is a roam request since both are trying to obtain information on the mobile node from the home switch so that data may appropriately be routed to the roaming mobile node, however Rue **is silent on** determining if the move request is associated with client roaming between two virtual local area networks (VLANs) serviced by the same switch by including said first switch in said sending.

Eglin further teaches a mobile device may roam from one VLAN to another VLAN serviced by the same switch (Fig.3) and Rue further teaches that a switch itself is checked to determine if information on the mobile node is stored in the database (Par.45;4-7, i.e. a roam request is sent to itself), therefore it is obvious that it would be determined whether or not the move request is associated with the client roaming between two virtual local area networks serviced by the same switch in said sending.

To one of ordinary skill in the art, it would have been obvious to modify Rue, such that it is determined if the move request is associated with client roaming between two virtual local area networks (VLANs) serviced by the same switch by including said first switch in said sending, so that data may appropriately be routed to the roaming mobile node.

Regarding Claims 10, 11, 32, 33, and 37, Rue and Eglin teach all the limitations as recited in claim 9, 31, and 33, and although the combination **is silent on** the move request being a Switch Access Point Protocol (SAPP) move request or ISRP roam request.

Rue teaches the mobile access server (i.e. switch) controls access points and supports signal protocol (Par.27:10-11). To one of ordinary skill in the art, it is obvious that signal protocol used for the roam request may be of type Switch Access Point Protocol (SAPP) or ISRP.

3. Claim 35 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rue (U.S. Pub. 2003/0185172 A1) in view of Lee et al (U.S. Patent 6535493 B1) and Edney et al (U.S. Pub. 2004/0255033 A1).

Regarding Claim 35, Rue teaches all the limitations as recited in claim 33, however Rue **is silent on** means for trapping all address resolution protocol (ARP) packets from the client; and means for sending an ARP reply to the client with a default router address for the switch.

Lee teaches trapping all address resolution protocol packets from the client (Col.11:30-32) and means for sending an ARP reply to the client with a default router address for the switch (Col.11:20-22).

Edney teaches a client device sending a ARP Request an access point and sending a ARP reply back to the client device (Par.29:6-10).

To one of ordinary skill in the art it would have been obvious to modify, Rue with Lee and Edney, since they are from similar search areas, transmitting data packets over wireless local area networks, such that there exists a means for trapping all address resolution protocol (ARP) packets from the client; and means for sending an ARP reply to the client with a default router address for the switch, to provide a method of securely transmitting data to appropriate destinations.

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4. Claim 36 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rue (U.S. Pub. 2003/0185172 A1) in view of Lee et al (U.S. Patent 6535493 B1).

Regarding Claim 36, Rue and Lee teach all the limitations as recited in claim 33, however the combination **is silent on** the move reply including a new VLAN identification.

Eglin teaches updating includes updating a virtual local area network (VLAN) tag corresponding to the client with a new VLAN tag corresponding to a new VLAN to which the client has roamed (Par.28;22-26, VLAN tag is changed).

To one of ordinary skill in the art, it would have been obvious to modify Rue and Lee, such that a virtual network tag corresponding to the client in a data structure controlled by the first switch is updated if the first switch is the same as the second switch, to provide a method of maintaining updated connectivity of the mobile devices by updating the VLAN tag and associating it to the correct VLAN.

5. Claims 3-6, 17-19, and 25-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al (U.S. Patent 6535493 B1) in view of Eglin (U.S. Pub.2003/0210671 A1).

Regarding Claims 3, 17, and 25, Lee teaches all the limitations as recited in claim 1, 16, and 23, respectively, and Lee teaches discovering if the first switch is the same as the second switch (Col.8;30-32); performing said determining, removing, and tunneling only if the first switch is not the same as the second switch (See Claim 1 rejection); setting the first switch as the foreign agent if the first switch is the same as the second switch (Col.8;23-25, the foreign agent is dynamically assigned, to a

skilled artisan, it is obvious that the first switch will be set as a foreign agent even if it is the same as the second switch); however Lee **is silent on** updating a virtual network tag corresponding to the client in a data structure controlled by the first switch if the first switch is the same as the second switch.

Eglin teaches the access port/VLAN may change when the mobile station roams between AP reception areas, e.g. from first access point to another access point and if the access port/VLAN is unchanged (i.e. meaning the first and the second switch are the same), then a data packet is updated with the appropriate VLAN tag and switched to the appropriate identified core port (Par.28;16-22).

To one of ordinary skill in the art, it would have been obvious to modify Lee, such that a virtual network tag corresponding to the client in a data structure controlled by the first switch is updated if the first switch is the same as the second switch, to provide a method of maintaining updated connectivity of the mobile devices by updating the VLAN tag and associating it to the correct VLAN.

Regarding Claims 4 and 26, the combination as discussed above teaches all the limitations as recited in claim 3 and 25, respectively, and Eglin further teaches updating includes updating a virtual local area network (VLAN) tag corresponding to the client with a new VLAN tag corresponding to a new VLAN to which the client has roamed (Par.28;22-26, VLAN tag is changed).

Regarding Claims 5, 18, and 27, the combination as discussed above teaches all the limitations as recited in claim 3, 17, and 25, respectively, and Lee further teaches ascertaining if the roaming being attempted is layer 2 or layer 3

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roaming (Col.8;30-35); executing said performing and setting only if the roaming being attempted is layer 3 roaming (See Claim 3 rejection, performing and setting only performed when mobile device roams to an access point in a foreign network, which is layer 3 roaming), and removing information regarding the client from a data structure controlled by the first switch (See rejection of Claim 1).

Regarding Claims 6, 19, and 28, the combination as discussed above teaches all the limitations as recited in claim 5, 18, and 27, respectively, and Lee teaches checking if the client is known to the first switch (See Claim 1 rejection); performing said discovering, executing, and removing only if the client is known to the first switch (See Claim 5 rejection, discovering, executing, and removing only done if first switch is home agent to the client, i.e. client is known to the first switch).

6. Claims 12, 15, 21, 34, and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al (U.S. Patent 6535493 B1) in view of Rue (U.S. Pub. 2003/0185172 A1) and Strachan et al (U.S. Pub 2004/0105440 A1).

Regarding Claims 12, 21, 34, and 40, Lee teaches handling a roam reply at a switch (Col.8;13-15, foreign agent handles roam reply), receiving the roam reply (Col.8;13-15, foreign agent handles roam reply, reply is received) determining if the roam reply indicates that the handling of a roam request was successful (Col.9;57-61, sends a predetermined code to allow determination of success or failure of roam request); sending a reply to a corresponding access point indicating failure if the handling of said roam request was not successful (Col.9;57-61, sends a code specifying reason of denial); setting the switch as a Foreign Agent for the client if the

handling of said roam request was successful (Col.8;32-34, when mobile unit moves to a new subnet, (i.e. under the control of a new router or switch) other than its home (i.e. home router or switch), this new subnet (i.e. the new switch) becomes its foreign subnet, i.e. foreign agent); and sending a move reply to said corresponding access point if the handling of said roam request was successful (Col.8;13-15), however Lee **is silent on** the roam reply having information regarding a client that is roaming to the switch, the information not previously available at the switch; and switching a router designated by the client with a default router for the switch if the handling of said roam request was successful.

Rue teaches the roam reply having information regarding a client that is roaming to the switch, (Par.52;7-12 and Par.53;5-11, internet protocol address of the mobile node (i.e. client) is information regarding the client), the information not previously available at the switch (Par.47, the internet protocol address of the first mobile access server was not known, hence a find request message);

Strachan teaches switching a router designated by the client with a default router for the switch if the handling of said roam request was successful (Par.28 and Par.42, the edge switch is the designated router and the core router is the default router).

To one of ordinary skill in the art it would have been obvious to modify Lee with Rue and Strachan, since they are from the same search areas, viz. supporting mobility between subnetworks, such that the roam reply has information regarding a client that is roaming to the switch, the information not previously available at the

switch; and switching a router designated by the client with a default router for the switch if the handling of said roam request was successful, to provide a method of enabling seamless roaming of mobile devices among wireless networks.

Regarding Claim 15, the combination as discussed above teaches all the limitations as recited in claim 12, however the combination **is silent on** move reply being a SAPP move reply.

Rue teaches the mobile access server (i.e. switch) controls access points and supports signal protocol (Par.27;10-11). To one of ordinary skill in the art, it is obvious that signal protocol used for the roam request may be of type Switch Access Point Protocol (SAPP).

7. Claims 13 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al (U.S. Patent 6535493 B1), Rue (U.S. Pub. 2003/0185172 A1), and Strachan et al (U.S. Pub 2004/0105440 A1) in further view of Edney et al (U.S. Pub. 2004/0255033).

Regarding Claims 13 and 22, Lee, Rue, and Strachan teach all the limitations as recited in claim 12 and 21, respectively, however the combination is **silent on** trapping all address resolution protocol (ARP) packets from the client; and sending an ARP reply to the client with a default router address for the switch.

Lee teaches trapping all address resolution protocol packets from the client (Col.11;30-32) and means for sending an ARP reply to the client with a default router address for the switch (Col.11;20-22).

Edney teaches a client device sending a ARP Request an access point and sending a ARP reply back to the client device (Par.29:6-10).

To one of ordinary skill in the art it would have been obvious to modify, Lee, Rue, and Strachan with Edney, since they are from similar search areas, transmitting data packets over wireless networks, such that there exists a means for trapping all address resolution protocol (ARP) packets from the client; and means for sending an ARP reply to the client with a default router address for the switch, to provide a method of securely transmitting data to appropriate destinations.

8. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al (U.S. Patent 6535493 B1), Rue (U.S. Pub. 2003/0185172 A1), and Strachan et al (U.S. Pub 2004/0105440 A1) in further view of Eglin (U.S. Pub. 2003/0210671 A1).

Regarding Claim 14, Lee, Rue, and Strachan teach all the limitations as recited in claim 12, however the combination **is silent on** the move reply includes a new VLAN identification.

Eglin further teaches updating includes updating a virtual local area network (VLAN) tag corresponding to the client with a new VLAN tag corresponding to a new VLAN to which the client has roamed (Par.28:22-26, VLAN tag is changed).

To one of ordinary skill in the art, it would have been obvious to modify Lee, Rue, and Strachan, such that a virtual network tag corresponding to the client is changed, to provide a method of maintaining updated connectivity of the mobile devices by changing the VLAN tag and associating it to the correct VLAN.

Conclusion


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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wesley L. Kim whose telephone number is 571-272-7867. The examiner can normally be reached on Monday-Friday 9:00am-5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, George Eng can be reached on 571-272-7495. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

WLK



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